

# Cervical Cancer

## Use of a Non-Physician Health Team for Screening Procedures

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■ *A team of non-physician personnel has been trained in cytologic screening for cervical cancer. In a county hospital clinic setting among low income women whose annual pelvic examinations were being bypassed by physicians, this three-person team has performed pelvic examinations and screening under physician supervision for one year.*

*Results of the first year's experience, measured in cancer detection and in recognition and referral of benign gynecological disease as well, would suggest that a non-physician team, with a registered nurse doing a pelvic examination of screening type, can screen for cervical cancer and other pelvic disease efficiently and without a significant lowering of the quality of medical care.*

*The training and use of teams of allied health care personnel directed by physicians is suggested as a practical means of overcoming the increasing shortage of physician services in annual screening for cervical cancer among low income women.*

MEDICAL CONTROL OF CERVICAL CANCER by annual cytologic screening continues to lag far behind its potential. It is generally agreed that if every adult female in a given population were to have annual examination of a Papanicolaou smear, most cases of cervical cancer would be detected and safely eliminated before reaching invasive stages. Yet today, 25 years after Papanicolaou and Traut<sup>1</sup> proved the value of vaginal cytology in cervical

cancer control, less than half of American women receive the protection of annual smear examination. Lower income women, well known to be relatively high in cervical cancer risk, are receiving generally even less cytologic protection than higher income women who are accustomed to seeing physicians for regular check-up examinations. In less affluent nations of the world, the percentage of women who are being cytologically screened drops to almost zero. Even with combined community efforts, no large population has ever been completely screened.

The customary procedure of a physician's pelvic examination and cytologic smear provides satis-

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factory and efficient protection for the individual, but apparently there are simply not enough physicians with the time and the interest to screen all adult women of this country each year, much less all women of the world. Preventable deaths continue to occur. Clearly, there is a need to explore any possible additional method which could help to fill in the thin spots in annual cytologic screening of total populations.

The objective of this pilot project is to test the value and the efficiency of a team of paramedical personnel who have been trained in case-finding, public education, screening pelvic examinations, and cytologic scanning for cervical cancer. This team has been placed in a clinic setting of low income women who were being passed over cytologically by the routine physician medical services of a large county-university hospital. For the past year, working independently, but under close medical supervision, this team has attempted to perform a screening pelvic examination with cytologic smear and scanning on all women coming to this institution, who would otherwise have had no pelvic examination at all.

## Material and Background

Probably the most complete mass population screening effort yet to be reported is the ten-year San Diego County Medical Society Uterine Cancer Control Project.<sup>2</sup> Our population sampling survey in 1966 showed that 82 percent of the total female population above age 21 in this county of more than one million people had received at least one cytologic examination.<sup>3</sup> Yet this left 18 percent who had never been examined cytologically. And 41 percent had not had a smear examination each year. Furthermore, the preponderance of women who were being missed in this community screening effort were those in the low income high risk group. Many of them were accustomed to seeking medical care, when they felt they needed it, in the large free or part-pay clinics of the San Diego County Hospital. Here, repeated efforts to establish routine annual pelvic examination with smears on all adult female patients had failed. Only the clinics in gynecology and in obstetrics succeeded in obtaining routine annual smears. In clinics where the medical focus was outside the female pelvis, such as orthopedics, eye, and even medicine, the case load was too great, the patient attitude too resistant or apathetic, and the customary physician's pelvic examination too time-consuming

and unwieldy to make it an annual routine for all patients. This provided as a test population a fairly well delineated population of low income women in the San Diego community, currently unscreened, with medical facilities available for examination, supervision and medical referral.

During the development of this project, the San Diego County Hospital was placed under the direction of the University of California. Now named University Hospital of San Diego County, this institution became the major clinical facility for the new University of California, San Diego School of Medicine. With a U.S.P.H.S. supporting grant, this project was sponsored by the Department of Obstetrics and Gynecology and co-sponsored by the Department of Pathology.

## The Non-Physician Health Team

Our team includes three paramedical personnel, selected and trained to function as a unit in areas where regular physician services are spread too thin to expect routine annual pelvic and cytologic examination on all women:

(1) **An Administrative Assistant** with a background as a medical secretary. This team leader is responsible for case-finding, coordinating team activities, record-keeping and reporting, correspondence and supplies.

(2) **A Registered Nurse** with a background of experience in office nursing with a group of gynecologists. This registered nurse is responsible for performing a screening type of pelvic examination with a cervical smear on all adult female patients who are found not to have had a smear within a year, and who would otherwise not have any pelvic examination during the course of their medical visit.

(3) **A Cytotechnician**, previously trained as a scanner in a pathologist's office. This cytotechnician stains and scans all project slides for cytologic abnormality. All abnormal findings are referred to the Department of Pathology for checking and disposition.

## Intra-Hospital Project Relationships

Problems in establishing this project into the operational structure of a large general hospital were of course anticipated. The performance of even a limited physical examination by a registered nurse was a new concept to many, and eyebrows were raised in a number of clinical departments.

Planning conferences with the hospital adminis-

trator resulted in his approval of the project and his wholehearted cooperation. Directives from the administrator to all departments, including house-keeping, purchasing, records and engineering, explained the purpose of the project and gave it "official status." The director of nurses issued separate instructions to all floor nurses and all clinic nurses, orienting all hospital nursing in the purpose of the project and assuring nursing cooperation. The attending staff was briefed on the project in staff meetings, followed by question and answer staff discussions. The intern and resident staff in all clinical departments was fully briefed and has been helpful and cooperative. Spurred by concern that a nurse might discover a cancer that a physician had missed (as indeed she has), interns and residents were quick to reduce the number of patients that were slipping by without pelvic examination.

## Project Procedure

Each morning before outpatient clinic hours, the project nurse and the project administrative assistant check inpatient charts on the various hospital wards, searching for patients who are to be discharged without having had a pelvic examination and smear. The project nurse carries with her a small bag containing speculae, gloves, lubricant, applicators, Ayre spatulas, slides and fixative. After a brief explanation, each unscreened patient receives a screening pelvic examination in bed, including speculum examination and Ayre scraping of the cervix.

In the clinic a small examining room is assigned for the project examinations. Charts of patients who have clinic appointments are checked each morning in each clinic, and a flag is put on any that do not show that the patient has had a cytologic smear within a year. When the patient has completed her medical visit, if a pelvic examination and smear have not been recorded, she is invited to the nearby project room "for a cancer smear." First, the nurse calls her attention to public education displays and brochures in the room. The nurse then takes a brief and pertinent history, fills out our project card, and individually reinforces patient knowledge in cancer detection and the "cancer smear." At the same time, on a regular gynecologic examining table, with minimum draping and maximum assurance, she quickly performs a bimanual pelvic examination for gross benign disease or tumors. Following this, she

TABLE 1.—*Cancer Detection by Paramedical Personnel Team*

Total patients screened . . . . .	1412
Suspicious or positive smears . . . . .	14 (1.0%)
Cancer by tissue diagnosis . . . . .	6 (0.4%)
1 early invasive, cervix	
1 adenocarcinoma, endometrium	
4 pre-invasive, cervix	
Dysplasia . . . . .	3
Chronic cervicitis . . . . .	5

inserts a speculum, snaps a 35 mm photograph of the cervix, and obtains a wooden Ayre spatula scraping from the portio and a specimen from the cervical canal by cotton applicator twist. Slides are spray-fixed and sent to the pathology laboratory for staining and scanning. As the patient leaves, she is again told the importance of returning each year for a repeat smear. The nurse refers all patients with suspicious symptoms or abnormal pelvic findings to the gynecology clinic for physician evaluation. She scrupulously avoids giving advice that could be construed as medical treatment, explaining to the patient her position as a nurse and not a physician.

In the laboratory the project cytotechnician stains and scans all slides. All abnormal or atypical findings are referred to the project pathologist who, using the five classifications of Papanicolaou, reports his findings. Reports are sent to project headquarters in the Department of Obstetrics and Gynecology. Class I reports are placed in an automatic "tickler" file for recall of the patient in one year. Class II reports are placed in a six-month recall file. For all Class III, IV or V reports, the patient is recalled to the gynecology clinic for a physician's examination, diagnostic study and appropriate treatment.

## Results

### *Cancer Detection*

Results in cancer detection are given in Table 1. Fourteen patients of 1,412 screened were found to have suspicious or positive smears. Tissue diagnosis confirmed unsuspected cancer, all by-passed by the usual physician services in this hospital, in six patients. This yield of one cancer per 250 patients, or 0.4 percent, is approximately the same cancer yield that was reported in physician screening in the early days of the San Diego County Medical Society project.<sup>4</sup>

### *Other Disease*

One hundred forty-one additional patients were

**TABLE 2.—Disease Other than Uterus Cancer Detected through Examination by Team of Paramedical Personnel**

Patients receiving screening pelvic examination .....	1412	
Patients referred for physician care .....	141 (10%)	
Carcinoma of rectum .....	1	
Prolapse and procidentia .....	5	
Fibroids .....	15	
Cystocele and/or rectocele .....	25	
Adnexal mass .....	15	
Cervical polyps .....	9	
Bartholin cysts .....	5	
Hormonal evaluation .....	26	
Inguinal hernia .....	1	
Other symptoms and conditions .....	39	
Patients receiving gynecologic operation .....	25	
Major .....	12	
Minor .....	13	

found on the nurse's screening pelvic examination to have significant abnormalities and were referred to the gynecology outpatient clinic for physician evaluation. The yield in benign and other pelvic pathologic findings is given in Table 2. This project was started at just about the time the full effect of Title 19 Federal Legislation in this hospital suddenly reduced the number of gynecologic operative patients to about half its former level. Our paramedical screening clinic led many patients, who otherwise would have been by-passed, to needed surgical care. Twenty-five patients referred from the project received gynecological operations for benign disease at this hospital.

In one Negro patient the project nurse noted that the cervix and vaginal mucosa were startlingly white against the black background of her skin. On physician referral hemoglobin was found to be less than 5 grams per 100 ml, which in turn led to the finding of an operable carcinoma of the rectum.

#### *Color Photography of the Cervix*

A 35 mm color photograph of the cervix is taken with a Coreco Clinical Camera during each screening pelvic examination. Photographs are scanned by the chief resident in gynecology. In the early months of the project, photography was felt to provide closer physician supervision and a double check on what the nurse was seeing and what she might be missing. As her experience increased, our confidence in her ability to recognize and refer the abnormal also increased. Photography has provided us with a wealth of photographs of the cervix, but little additional clinical help.

#### *Validity of the "Screening Pelvic Examination"*

In order to test diagnostic skill and accuracy of our project nurse in the screening pelvic examination, a series of 25 of her examinations was checked by the chief resident in gynecology. Findings of the nurse and of the resident were recorded separately on cards which were then handed to the project director for comparing. No significant gynecologic lesions or pathologic changes were reported by the resident and missed by the nurse. Indeed, findings recorded separately by the two examiners were remarkably consistent.

#### *Public Education and Patient Acceptance*

A cheerful, friendly and persuasive attitude, a natural attribute of our project nurse, have created an almost perfect record of patient acceptance of pelvic examination for the project. She takes full advantage of her unique opportunity to overcome apathy and ignorance in the patients she sees. With physician coaching she has developed a patient teaching program that combines lay education in cancer detection with good medical public relations.

#### **Discussion**

As the need for physician services draws further and further ahead of the rate at which physicians can be educated, medical health teams composed of non-physician personnel, directed by physicians, may well help to fill in thin spots in medical care. In the earlier days of cytological practice, it became obvious that physicians alone could not adequately scan all the slides that needed to be scanned. Technicians were trained to become full-time professionals in scanning. Gradually cytotechnologists became as adept and even more efficient than many hurried physicians who simply had not enough time to spend on scanning. Now, since the entire female half of the world's adult population needs a pelvic and cytologic examination each year, and since there are not enough physicians to perform these examinations, additional means must be devised to get the job done. Observations from this pilot project would suggest that non-physician personnel can be trained successfully in cervical cancer screening, and further, that non-physician pelvic cytologic screening can be done without basically reducing the quality of medical care. Results of non-physician screening, measured in terms of cancer detections, were ap-

proximately equal to the results of physician screening.

Our team has started its second year of operation, with additional procedures in cancer screening. Breast examinations and public education in self-examination for breast cancer have been added to the routine screening pelvic examination which the project nurse performs on each patient. The second year's experience will be reported when it has been completed.

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## IS THE TUBE FUNCTIONING, OR JUST OPEN?

"How do we go about evaluating the Eustachian tube? There are many tests that will tell whether or not the tube is patent, but this is entirely different from telling whether or not it will respond to normal physiologic demands. This is, I find, the hardest concept to get across. For some reason, people feel that if you can politzerize a tube, the tubal function is normal. This test doesn't tell you anything about tubal function. Lack of ability to politzerize a tube would certainly indicate a significant obstruction; but ability to politzerize it tells you absolutely nothing about whether the tube is [functioning] or would function under duress.

"One method I've found useful for evaluating the Eustachian tube is putting three or four drops of ophthalmic sulfisoxazole (Gantrisin) solution in the ear and then seeing how long it takes for the patient to taste it. This is a relatively handy test for people who are not allergic to sulfonamides. You can use it to determine how effectively the tube opens. But this hinges, of course, on whether the patient can taste Gantrisin. Some people can notice its bitter taste and some can't; if they don't, you have to put some on the tongue to see if they could have tasted it had it gone in. . . . It goes without saying that there has to be a perforated ear drum or a myringotomy so that we are really communicating with the middle ear."

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